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What is claimed is:

Sub Q1

1. A process for detecting a complementary DNA fragment which comprises the steps of:
  - 5 bringing single-stranded sample DNA fragments having a radioactive label in a liquid phase into contact with a DNA micro-array having at least two defined areas in each of which a group of nucleotide derivatives and analogues thereof are fixed under such condition that a group of
  - 10 nucleotide derivatives and analogues thereof fixed in one area differs from a group of nucleotide derivatives and analogues thereof fixed in another area, so that DNA fragments complementary to a group of nucleotide derivatives and analogues thereof are fixed by hybridization to
  - 15 the area in which the group is fixed;  
removing unfixed sample DNA fragments from the DNA micro-array;
  - 20 keeping the DNA micro-array in contact with a radiation image storage panel containing a stimuable phosphor via a spacer sheet having openings in areas corresponding to the areas on which groups of nucleotide derivatives or analogues thereof are fixed, so that the stimuable phosphor sheet can absorb and store radiation energy of the radioactive label coming from the fixed DNA
  - 25 fragments through the openings;  
irradiating the radiation image storage panel with a stimulating light, so that the image storage panel releases a stimulated emission from the area in which the radiation energy is stored;
  - 30 detecting the stimulated emission photoelectrically to obtain a series of electric signals; and  
processing the electric signals to locate the area in which the complementary DNA fragments are fixed.
- 35 2. The process of claim 1, in which the spacer sheet is made of non radiation-transmitting material.

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3. The process of claim 1, in which the radiation image storage panel is irradiated with a stimulating light after it is separated from the DNA micro-array.

5           4. A kit for detecting complementary DNA fragments comprising a DNA micro-array having at least two defined areas in each of which a group of nucleotide derivatives and analogues thereof are fixed under such condition that  
10 fixed in one area differs from a group of nucleotide derivatives and analogues thereof fixed in another area, a radiation image storage panel containing a stimuable phosphor, and a spacer sheet having openings in areas corresponding to the areas on which groups of nucleotide  
15 derivatives or analogues thereof are fixed.

5. The kit of claim 4, in which the spacer sheet is made of non radiation-transmitting material.

20           6. A composite structure comprising a DNA micro-array having at least two defined areas in each of which a group of nucleotide derivatives and analogues thereof are fixed under such condition that a group of nucleotide  
25 derivatives and analogues thereof fixed in one area differs from a group of nucleotide derivatives and analogues thereof fixed in another area, a spacer sheet having openings in areas corresponding to the areas on which groups of nucleotide derivatives or analogues thereof are fixed, and a radiation image storage panel containing a  
30 stimuable phosphor, overlaid in order, the spacer sheet being positioned in relation to the DNA micro-array in such condition that the openings of the spacer sheet face the areas of the micro-array in which groups of nucleotide derivatives and analogues thereof are fixed.

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7. A radiation image storage panel containing a stimulable phosphor, which has on its surface a spacer film of non radiation-transmitting material having plural openings are formed.